Audubon | TEXAS

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Federal Aviation Administration
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Re: Scoping Comments on FAA Programmatic Environmental Assessment for SpaceX Starship Super Heavy Project at the Boca Chica Launch Site

Audubon Texas is the state office of the National Audubon Society. We have been working along the Texas coast since 1923, focusing on birds and the places they need to survive and flourish. We are also leaseholders of multiple islands along the Texas coast, which we maintain, often with dedicated partners, for the benefit of resident and migratory birds.

Bird lovers, like space enthusiasts (and many of us are both), often look to the skies for inspiration. Still, we are observing the activities of SpaceX and the FAA with concern, because of significant changes to the original scope and mission; because of the location of the launch site, situated among state lands at Boca Chica and federally protected lands at the Lower Rio Grande Valley National Wildlife refuge; and finally, the relatively novel and ill-understood long-term impacts of such infrastructure in this sensitive setting.

Since the initial draft environmental impact statement and record of decision (ROD) dated July 9, 2014, there have been eight (8) written re-evaluations of the 2014 final environmental impact statement (FEIS) for the SpaceX launch site, or addenda to those re-evaluations, so needed as SpaceX modified site and equipment plans for the area. While we certainly understand how business plans can and do change, particularly in a field as novel, iterative, complex, and uncertain as private space exploration, we are also mindful of the underlying goals of the laws which apply to these studies and activities. We

believe these continued amendments, changes in scope, changes in the kinds of rockets and materiel that will be used, etc. must be carefully considered against FAA Order 10501f, which states, in part

> b. Scope of Proposed Action. To determine the scope of an EA or EIS, the responsible FAA official must consider:
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> (1) Connected actions. Connected actions are closely related actions that: (a) automatically trigger other actions; (b) cannot or will not proceed unless other actions are taken previously or simultaneously; or (c) are interdependent parts of a larger action and depend on the larger action for their justification (see 40 CFR § 1508.25(a)(1), CEQ Regulations). Connected actions and other proposed actions or parts of proposed actions that are related to each other closely enough to be, in effect, a single course of action must be evaluated in the same EA or EIS (see 40 CFR §§ 1502.4(a) and 1508.25(a)(1), CEQ Regulations). A proposed action cannot be segmented by breaking it down into small component parts to attempt to reduce impacts (see 40 CFR § 1508.27(b)(7), CEQ Regulations).
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> (2) Cumulative actions. Cumulative actions, when viewed with other proposed actions, have cumulatively significant impacts. Cumulative actions should be discussed in the same EIS (see 40 CFR § 1508.25(a)(2), CEQ Regulations). (See Paragraph 4-2.d(3) for a discussion of cumulative impacts).
> (3) Similar actions. Similar actions, such as those with common timing or geography, should be considered in the same environmental document when the best way to assess their combined impacts or reasonable alternatives to such actions is in a single document (see 40 CFR §§ 1502.4(b) through (c) and 1508.25(a)(3), CEQ Regulations).[1]

Today's SpaceX activities do not much resemble the plan considered under the original record of decision (ROD); combined with the revisions to the proposal since then, fresh consideration is merited

[1] From https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf, p. 22, sec. 2-7

under a new environmental impact statement (EIS), which would also allow for more transparent public comment and input. The standard for whether this may be the case tends to rest on whether "there are no substantial changes in the action that are relevant to environmental concerns."[2] We agree with other groups that the changes to SpaceX's actions over the past seven years are substantial and are clearly relevant to environmental concerns.

Among the key differences between today's project and the activities authorized in the 2014 ROD:

- Nearly doubling the number of hours of public access closures from 180 in 2014 to 300 today to accommodate the licensed testing program; we are also concerned that SpaceX has far exceed both of these hours of closure during operations;
- The decision to focus on Starship/Super Heavy launch operations, as opposed to the initial Falcon 9 plans, which were never initiated. The Starship/Super Heavy launches are far larger, more massive, rely on different fuels, and intended to fly into sub-orbit and orbit, activities that are not contemplated under the original permit;
- Changes to the vertical launch area (VLA);
- Significant changes to the number of "hops" and static fire tests;
- Upward revisions to proposed pollutants and greenhouse gases (GHGs) or CO_2 equivalent (CO_2e). We do appreciate the GHG accounting that has been performed by SpaceX and the FAA and we encourage SpaceX to look for ways to avoid 1) venting and 2) flaring methane and instead focus on beneficial use if possible.
- Plans for on-site desalination facilities

Moreover, we are generally aware of the kinds of impacts that can result from large infrastructure projects such as this, in addition to the impacts from those activities named above. We are gaining increased awareness of the kinds of "forever chemicals" (so-named because they do not biodegrade easily and tend to accumulate in soils, groundwater, and biological tissue) that are used in airports, for example, in detergents, surfactants, and firefighting foams, and the literature suggests that principal environmental impacts result from "fuel storage, stormwater runoff and drainage systems, fuel hydrant

[2] Paragraph 9-2.c of FAA Order 1050.1F

systems, fuel transport and refueling, atmospheric deposition, and fire rescue and firefighting training areas," among others: precisely the sorts of activities and challenges we can expect of the SpaceX site.[3]

The substantial changes have inevitable environmental impacts. We are specifically concerned about the impacts to coastal and wetland habitats in the surrounding area and impacts to resident and migratory birds relying on these habitats. The SpaceX facility is located directly adjacent to the Lower Rio Grande National Wildlife Refuge and nearby the Laguna Atascosa Wildlife Refuge. More than 515 species of birds have been recorded in the lower Rio Grande Valley, many of which are classified as Species of Greatest Conservation Need (SGCN) in Texas and three of which are federally listed under the Endangered Species Act: the Aplomado Falcon, Piping Plover, and Red Knot. Shorebirds from around the world converge on the refuge during the nonbreeding season (September – March) to forage, rest, and build a large enough energy reserve to continue their migration to their nesting grounds. Included in these wintering and stopover species are two of the listed species noted above, the Red Knot and the Piping Plover, which depend on healthy and productive bay and estuarine shorelines and tidal flats. As stated in the Biological Opinion,[4] "Since Piping Plovers spend 55 to 80 percent of their annual cycle associated with wintering areas, factors that affect their well-being on the wintering grounds could substantially affect their survival and recovery (Service 1996)." We are also concerned about the potential for direct and indirect disturbance of nesting birds which can cause abandonment of nests and the loss of productivity in these bird populations. For example, Snowy Plover (SGCN) nests have been documented in the vicinity of the SpaceX property. Based on the conditions created by SpaceX operations, such as noise, night lighting, and vehicle traffic in areas where Piping Plover, Snowy Plover, and other shorebirds are present, the chance for disturbance and impacts to long-term survival is high. In addition to the direct impacts to wildlife and wildlife habitats, many Audubon members and citizens interested in observing biodiverse natural habitats visit the impacted areas and generate revenue for local communities. These birding sites are at the northernmost range of many of the observed species' ranges and, therefore, provide the only opportunity to observe these species in the continental United States. The lack of access to these places and the degradation of these habitats will not only impact local

[3] Environmental impacts on soil and groundwater at airports: origin, contaminants of concern and environmental risks; L M Nunes , Y-G Zhu, T Y Stigter, J P Monteiro, M R Teixeira, Journal of Environmental Monitoring, 2011 Nov;13(11):3026-39. [3]

[4] U.S. Fish and Wildlife Service's Final Biological and Conference Opinions. December, 2013. Page 32.

the local ecotourism economy, it will also forever change the quality of life of the people who live near and visit these special places.

The surrounding habitats in the Bahia Grande coastal corridor are so important to the ecological health and coastal resilience of the state that they have been prioritized for restoration in the 2019 Texas Coastal Resilience Master Plan (project R4-1 Bahia Grande Hydrologic Restoration). The Bahia Grande restoration effort has been supported with a $4.38 million investment by the RESTORE Council and a $12.5 million investment by the National Fish and Wildlife Foundation's Gulf Environmental Benefit Fund. It has also been highlighted by the state as a successful example of cross-agency coordination and regional restoration planning. Any impacts to the local water quality in this region have the potential to jeopardize these large-scale restoration investments made and underway by the state and the BP Restoration planning bodies and funders.

SpaceX operations are necessarily laser-focused on precision, attention to detail, and safety. Human lives are at stake, and enormous capital is at risk. We are optimistic that the same caution and level of understanding of cause and effect can be applied to the potential environmental risks to this fragile ecosystem. As we write, we are aware of the latest news that researchers believe that Mars once had a climate similar to Iceland's. We should be focused on Mars, absolutely; in the meantime, let us also heed carefully our local scientific concerns, and steward the planet to which we are all bound, at least for the time being.

Respectfully,

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